Remarks/Argument

Claim Summary

By this Amendment, claims 6 and 19 have been revised.

Claims 6-25 remain pending in the application.

General Observations

Respectfully, Applicant simply cannot follow the reasoning or logic in support of the Examiner's proposed combinations of references.

In each of the rejections, the Examiner is combining disparate teachings of the cited references without regard to (a) what the references are attempting to accomplish, and (b) what form the resultant of the proposed combinations would take. The rejections simply take isolated teachings from various references, and then combine the teachings without any discussion of motivation or what might result from the combined teachings.

As one example only, the Examiner apparently attempts to modify the teachings of Maruaya et al. in view of the teachings of Segawa et al.

However, Maruyama et al. is directed to the removal of resist residues from a fabricated semiconductor substrate, whereas Segawa et al. is directed to intentionally roughing the inner surface of a fabrication chamber. In this respect, the Examiner states:

> *"It would have been obvious ... to use the organic acid taught by Segawa et al. in the Maruyama et al. process ... because both references are from the same technical endeavor, which is cleaning ceramic parts ... ."*

In fact, neither Maruyama et al. nor Segawa et al. is direct to cleaning ceramic parts.

As another example, the Examiner makes the following statement:

"Torii et al. disclose a method for cleaning ceramic parts ... ."

In contradistinction, the Examiner then makes the following statement:

"Torii et al. do not teach the ceramic parts ... ."

As pointed out in Applicant's previous response, Torii et al. does not disclose the cleaning of ceramic parts. Rather, Torri et al. is directed to the cleaning of metallic layer sidewalls and/or via holes formed over a semiconductor substrate.

Without any regard or acknowledgment of the clear physical differences between an integrated circuit substrate and a ceramic dome, the Examiner states that it would be obvious to apply the ceramic dome cleaning techniques of Tan et al. to the process of Torii et al. The Office Action is completely devoid of any supporting rationale for such combination.

In short, the Examiner's rejections do not rise to the level of a *prima facie* case of obviousness.

If for some reason the rejections are maintained, Applicant respectfully requests the Examiner's assistance in clarifying exactly how the references are being combined, and under what rationale one of ordinary skill would ignore the obviously disparate objectives of the references relative to the claimed invention.

35 U.S.C. ¶103

Claims 6-25 were rejected under 35 U.S.C. ¶103 as being unpatentable over Torii et al. (US 5972862) in combination with Tan (6810887) and Hightower et al. (US 3033710) and Maruyama et al. (US 5962385), for the reasons stated at pages 2-4 of the Office Action. As discussed below, Applicants respectfully traverse this rejection.

In the Office Action, the Examiner states:

> *"Torii et al. disclose a method for cleaning ceramic parts on which plasma reaction by products are adsorbed."*

In fact, however, Torii et al. does not disclose the cleaning of ceramic parts. Rather, Torri et al. is directed to the cleaning of metallic layer sidewalls and/or via holes formed over a semiconductor substrate. See, e.g., col. 1, lines 11-24; col. 2, lines 60-64; and col. 3, line 56, through col. 4, line 8.

As such, Torii et al. does not teach dipping ceramic parts of semiconductor fabrication equipment into a cleaning solution as is apparently suggested by the Examiner.

In the Office Action, the Examiner further states:

> *"It would have been obvious for one skilled in the art to use the ultrasonic and the heating step taught by Tan in the Torii et al. process to remove any moisture from the parts and to improve the cleaning process."*

Applicants again respectfully point out that Torii et al. is directed to the cleaning of a semiconductor device substrate during fabrication of the semiconductor device. In contrast, Tan teaches cleaning of a ceramic dome where the cleaning process includes heat treatment to about 700-800°C for about 6-12 hours. See col. 12, lines 26-27. Applicants submit it to be manifest that one skilled in the art (who is always concerned with thermal budgets) would not apply the high-temperature heat treatment process of Tan to the semiconductor device substrate cleaning process of Torii et al. Clearly, such high-temperature heat treatment could damage or alter the physical characteristics of the semiconductor device substrate.

For similar reasons, Applicants respectfully contend that one of ordinary skill would not utilize the ultrasonic treatments of Tan and Hightower to the semiconductor device substrate of Torii et al. More specifically, one of

ordinary skill would consider these ultrasonic treatments as being inappropriate for the delicate processes associated with fabricating a semiconductor device substrate.

The Examiner's reliance on Maruyama et al. is confusing as well. Maruyama et al. is for removing resists residues from semiconductor devices – not ceramic parts of fabrication or etching equipment. Further, the Examiner has not identified in Maruyama et al. the organic acid of the presently claimed invention. Still further, the amount of organic solvent in Maruyama et al. far exceeds that defined by the present claims.

In the Office Action, the Examiner states:

> *"It would have been obvious ... to use the cleaning solution taught by Torii et al. for cleaning ceramic parts or glass substrates, because Maruyama et al. disclose that the cleaning solution which is equivalent to the Torii et al. cleaning solution can be used in cleaning semiconductor wiring materials and glass substrates."*

Applicant has no idea what the Examiner is trying to represent in the above passage of the Office Action.

First, neither Torii et al. nor Maruyama et al. are directed to the cleaning of ceramic parts of fabrication equipment.

Second, the cleaning solutions of Maruyama et al. and Torii et al. are not equivalent.

Third, what does the fact that Maruyama et al. suggests use of their cleaning solution to clean devices formed on glass substrates (such as LCD devices) have to do with ceramic parts of fabrication equipment?

Claims 6-25 were also rejected under 35 U.S.C. ¶103 as being unpatentable over Maruyama et al. in combination with Segawa et al. (US 2002/007886), Tan (US 6810887) and Hightower et al. (US 3033710), for the reasons stated at pages 4-5 of the Office Action. As discussed below, Applicant respectfully traverses this rejection as well.

In the Office Action, the Examiner states:

> *"It would have been obvious ... to use the organic acid taught by Segawa et al. in the Maruyama et al. process ... because both references are from the same technical endeavor, which is cleaning ceramic parts ... ."*

In fact, neither Maruyama et al. nor Segawa et al. is direct to cleaning ceramic parts.

As noted previously, Maruyama et al. is directed to cleaning semiconductor devices. Although Maruyama et al. suggests that such devices may include a glass substrate, the reference is devoid of any teachings directed to the cleaning of ceramic parts as defined in the present claims.

Segawa et al. is directed to a process for intentionally roughening the inner surface of a fabrication chamber. Where exactly does Segawa et al. teaching the cleaning of ceramic parts as alleged by the Examiner? Also, how exactly would a process which is intended to deform the inner surface of a fabrication chamber be applied to the cleaning of delicate semiconductor devices?

Further, Applicant's comments above with respect to Hightower et al. are equally applicable to the rejection based on Maruyama et al. and Segawa et al.

For **at least** the reasons stated above, Applicants respectfully contend that claims 6-25 would not have been obvious to one of ordinary skill in the art in view of the cited references, taken individually or in combination.

Conclusion

No other issues remaining, reconsideration and favorable action upon the claims 6-25 now pending in the application are requested.

Respectfully submitted,

VOLENTINE FRANCOS & WHITT, PLLC

Adam C. Volentine
Reg. No. 33,289

March 22, 2006

Customer Number 20987
Volentine Francos & Whitt, PLLC
One Freedom Square
11951 Freedom Drive, Suite 1260
Reston VA 20190